

CLAIMS

What is claimed is:

1. A core drilling machine with an electrical motor (2) for rotational drive of a core drilling bit (3) having cutting edges oriented axial to a work piece (4), a feeding means (6) for generation of the feed of the core drill bit (3) against the work piece (4) and a controller (7) for controlling, relative to a first one-to-one control parameter, detected by a sensor (8, 8') for one of electrical power consumption (P) and torque (M), wherein a force sensor (9, 9') is connected to the controller (7) for detecting the contact pressing force (F_N) of the core drill bit (3) as the second control parameter.
2. The core drilling machine of claim 1, wherein the force sensor (9) is a piezo force sensor arranged in an thrust bearing zone (10) of a drive spindle (11).
3. The core drilling machine of claim 1, wherein the force sensor (9') is a power sensor of the feeding means (6).
4. The core drilling machine of claim 3, wherein the controller (7) is a microcontroller.
5. The core drilling machine of claim 4, wherein the controller (7) is connected to an input means (14) for the radius (r) of the drill bit (3), with a transponder that queries an identification means (15) on the core drill bit (3).
6. The core drill machine of claim 5, wherein one of respectively different torques M_I and speeds n_I are arranged in the controller (7) relative to at least two different frictional coefficients (μ_I).

7. The core drilling machine of claim 1, wherein the electrical motor (2) is connected to a motor controller (12) controllably connected to the controller (7) that can electrically switch different working points (A_i) of the electrical motor that lies on the motor characteristic curve of maximal power (P_{\max}).
8. The core drill machine of claim 1, wherein respectively different torques / speed – pairings ($[M_i / n_i]$) are arranged in the controller (7) relative to at least two different frictional coefficients (μ_i) that are assigned.
9. The core drilling machine of claim 7, wherein the controller (7) connected in the feeding means (6) by a bi-directional optical interface (16) is connected to the motor controller (12).
10. A process for controlling a core drilling machine (1) having an electrical motor (2) for rotational drive of a core drill bit (3), wherein, in a first step, a first control parameter that is dependent on the electrical motor (2) is detected to a sensor (8, 8'); in a second step, the control parameter is evaluated by a controller (7), and in a third step, a feeding means (6) for the core drill bit (3) is controlled by controller (7), wherein in the first step, a second control parameter that is dependent on the contact pressing force (F_N) is detected using a force sensor (9, 9'), in the second step, a one-to-one control parameter relative to the frictional coefficient (μ) is determined from the first and the second control parameter and in the third step, the one-to-one control parameter is used for controlling the feeding means (6).

11. The process according of claim 10, wherein, in the third step, a motor control (12) of the electrical motor (2) is controlled using the control parameter relative to at least two different working points (A_i) that lie on the motor characteristic curve of maximum power (P_{\max}).